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(54) COMPOSITE MATERIAL

(57)Abstract:

PURPOSE: To obtain a functional material having a small thermal expansion coefft. so as to obtain reliability of joining with a semiconductor element and also having thermal conductivity capable of obtaining sufficient heat radiating property.

CONSTITUTION: Quartz particles of $\leq 500\mu\text{m}$ average particle size are uniformly dispersed in a metal material having high thermal expansion such as Cu, Cu- alloy, Al, Al-alloy to decrease the thermal expansion coefft. By properly selecting the volume proportion of quartz particles in the metal material from the range of 40 to 70%, a desirable thermal expansion coefft. can be obtd. while sufficient thermal radiating property is maintained. Thus, both of low thermal expansion and high thermal conductivity can be obtd. The material can easily be produced into a desired form by powder metallurgical processing, and composite material having proper characteristics and a shape according to the purpose can easily be obtd.

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